

REMARKS

Claims 1, 3-10, 12-19 and 21-27 are pending in this application. By this Amendment, claims 1, 10 and 19 are amended to incorporate the subject matter of claims 2, 11 and 20, respectively. Claims 2, 11 and 20 are correspondingly canceled. Claims 5-8 are each amended to incorporate the subject matter of claim 1. Claims 14-17 are each amended to incorporate the subject matter of claim 10. Claims 23-26 are each amended to incorporate the subject matter of claim 19. Claims 3 and 4 are amended to change their dependency from canceled claim 2 to pending claim 1. Claims 12 and 13 are amended to change their dependency from canceled claim 11 to pending claim 10. Claims 21 and 22 are amended to change their dependency from canceled claim 20 to pending claim 19. Claims 8, 9, 17, 18, 26 and 17 are amended to correct antecedent basis issues. Claims 8, 17 and 26 are also amended to replace "each discrete frame" with "each two-frame or each M-frame($M \geq 3$)". Support for the amendment to claims 8, 17 and 26 may be found at page 29, lines 13-16. Thus, no new matter is added by the amendments to the claims. Reconsideration based on the above amendments and following remarks is respectfully requested.

I. The Claims Satisfy 35 U.S.C. §112, Second Paragraph

The Office Action rejects 8, 9, 17-18 and 26-27 under 35 U.S.C. §112, second paragraph as allegedly being indefinite. Specifically, the Office Action asserts that there is insufficient antecedent basis for "each discrete frame," as recited in claims 8, 17 and 26. The Office Action further asserts that there is insufficient basis for "the K-th objects, the L-th object and the (N+1)th frame," as recited in claims 9, 18 and 27. These rejections are respectfully traversed.

Each of claims 8, 17 and 26 are amended to remove "each discrete frame." Each of claims 9, 18 and 27 are amended to provide proper antecedent basis. Withdrawal of this rejection is thus respectfully requested.

II. The Claims Satisfy 35 U.S.C §101

The Office Action rejects claims 10-18 under 35 U.S.C. §101 because the Office Action asserts that the claimed invention is allegedly directed to non-statutory subject matter. Specifically, the Office Action asserts that claim 10 is directed toward "a carrier wave" which is a disturbance of matter and thus, does not fall within one of the four categories of subject matter enumerated in 35 U.S.C. §101. Applicants respectfully traverse this rejection.

The MPEP states at §2106 §IV(B)(1)(a), on page 2100-13 that "the claimed computer-readable medium encoded with computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory." Specifically, a carrier wave is defined as a waveform suitable for modulation by an information-bearing signal. The carrier wave is a data signal. Further, the carrier wave is a computer-readable medium and thus, not a natural phenomenon.

Because a carrier wave is a computer-readable medium, and the claimed carrier wave is encoded with a computer program, claim 10 and claims 11-18 dependent therefrom, meet the statutory requirements of 35 U.S.C. §101.

Nonetheless, to expedite allowance of this application, claim 10 is amended to recite "a computer program embodied on an information storage medium, the program comprising a processing routine for a computer to realize." Applicant submits that claim 10, as well as the claims dependent therefrom, meet the statutory requirements of 35 U.S.C. §101.

Withdrawal of this rejection is thus respectfully requested.

III. Rejection Under 35 U.S.C. §102(b)

The Office Action rejects claims 1, 10 and 19 under 35 U.S.C. §102(b) over U.S. Patent No. 5,649,173 to Lentz. This rejection is respectfully traversed.

Claim 1 recites a game system performing image generation comprising a processor having an intermediate buffer drawing section which temporarily draws an image of a geometry-processed object in an intermediate buffer in place of drawing the image in a frame buffer; and a frame buffer drawing section which draws the image of the geometry-processed object drawn in the intermediate buffer from the intermediate buffer into the frame buffer, wherein, the frame buffer drawing section draws a primitive surface into the frame buffer of which drawing positions are specified based on three-dimensional information of the object and on which the image of the geometry-processed object drawn in the intermediate buffer is texture-mapped.

Claim 10 recites a computer program embodied on an information storage medium, the program comprising a processing routine for a computer to realize an intermediate buffer drawing section which temporarily draws an image of a geometry-processed object in an intermediate buffer in place of drawing the image in a frame buffer; and a frame buffer drawing section which draws the image of the geometry-processed object drawn in the intermediate buffer from the intermediate buffer into the frame buffer, wherein into the frame buffer, the frame buffer drawing section draws a primitive surface of which drawing positions are specified based on three-dimensional information of the object and on which the image of the geometry-processed object drawn in the intermediate buffer is texture-mapped.

Claim 19 recites an image generation method for generating an image comprising temporarily drawing an image of a geometry-processed object in an intermediate buffer in place of drawing the image in a frame buffer; and drawing the image of the geometry-processed object drawn in the intermediate buffer from the intermediate buffer into the frame buffer, wherein a primitive surface, of which drawing positions are specified based on three-dimensional information of the object and on which the image of the geometry-processed object drawn in the intermediate buffer is texture-mapped, is drawn into the frame buffer.

The Office Action acknowledges that Lentz fails to disclose drawing positions being specified based on three-dimensional information of the object and on which the image of the geometry-processed object drawn in the intermediate buffer is texture-mapped.

Each of claims 1, 10 and 19 discloses this feature. Thus, as acknowledged by the Office Action, Applicant submits that Lentz fails to anticipate the subject matter of amended claims 1, 10 and 19. Reconsideration and withdrawal of the rejection is respectfully requested.

IV. Rejections Under 35 U.S.C. §103(a)

The Office Action rejects claims 2-3, 8-9, 11-12, 17-18, 20-21 and 26-27 under 35 U.S.C. §103(a) over Lentz in view of U.S. Patent No. 5,280,568 to Obata; rejects claims 4, 6, 7, 13, 15, 16, 22, 24 and 25 under 35 U.S.C. §103(a) over Lentz in view of Obata and further in view of U.S. Patent No. 6,034,693 to Kobayashi et al.; and rejects claims 5, 14, 20 and 23 under 35 U.S.C. §103(a) as unpatentable over Lentz in view of U.S. Patent No. 6,198,477 to Kurtze et al. These rejections are respectfully traversed.

Claims 2, 11 and 20 are herein canceled, however, the subject matter of each of claims 2, 11 and 20 is incorporated into each of claims 1, 10 and 19, respectively.

According to claims 1, 10 and 19, a drawing position DP is specified based on three-dimensional information of the object OB, and a primitive surface PS (on which the image of the geometry-processed object OB drawn in the intermediate buffer is texture TEX mapped) is drawn in the frame buffer (see Fig. 3 of the present application).

According to claims 5, 14 and 23, an image drawn in the intermediate buffer subjected to a given image effect processing (such as pixel exchanging process and pixel averaging process), before an image drawn in the intermediate buffer is drawn in the frame buffer (see Fig. 6 of the present application).

According to claims 6, 15 and 24, an image drawn in the intermediate buffer at a present frame (for instance N frame) is synthesized with another image drawn in the frame buffer at a past frame (for instance N-1 to N-5 frames) before the image drawn in the intermediate buffer is drawn in the frame buffer (see Fig. 9 of the present application).

According to claims 7, 16 and 25, an image drawn in the intermediate buffer is synthesized with another image drawn in the frame buffer before the image drawn in the intermediate buffer is drawn in the frame buffer (see Fig. 10 of the present application).

According to claims 8, 17 and 26, the image of the geometry-processed-object is drawn in the intermediate buffer for each two-frame or each M-frame ($M \geq 3$).

The Office Action acknowledges that Lentz fails to disclose a frame buffer drawing section that "draws a primitive surface of which drawing positions is specified based on a three-dimensional information of the object . . . texture-mapped" as now recited in claims 1, 10 and 19. However, the Office Action asserts that Obata makes up for this deficiency. Specifically, the Office Action asserts that Obata discloses (1) providing drawing positions based on the information of the object, (2) a buffer performing hidden-surface removal between the primitive surfaces based on the depth values of the respective primitive surfaces, and (3) a buffer drawing section draws the image of the geometry-processed object in the intermediate buffer for each discrete frame. The Office Action further asserts that Lentz teaches drawing image at the n-th frame and drawing the image of the i-th object in the intermediate buffer at the (n+1)th frame without drawing the image of the k-th object. These assertions are respectfully traversed.

The Office Action further acknowledges that Lentz in view of Obata fails to disclose making images text-mapped over the plurality of primitive surfaces different from one another. However, the Office Action asserts that Kobayashi teaches an image synthesizing apparatus enabled to make images texture-mapped over the plurality of primitive surfaces

different from one another. The Office Action further asserts that Kurtz teaches an image processing system capable of providing a given image effect processing on the image on the intermediate buffer before the image drawn in the intermediate buffer drawn in the frame buffer.

Even if the references were combined as suggested by the Office Action, the presently claimed invention still would not be achieved. That is, Lentz suggests using an image of the object temporarily drawn in the intermediate buffer as a frame image, as in the conventional double buffering method. The presently claimed invention, however, discloses drawing an image which has been subjected to texture mapping or an image effect processing, using the image of the object temporarily drawn in the intermediate buffer.

Furthermore, unlike Lentz and Obata, the presently claimed invention discloses drawing an object (which has been temporarily drawn in the intermediate buffer) in the frame buffer for each two-frame or each M-frame ($M \geq 3$).

Accordingly, Lentz, Obata, Kobayashi and Kurtze, whether alone or in any combination, fail to teach or suggest the features of claims 1, 3-10, 12-19 and 21-27. Reconsideration and withdrawal of the rejection is respectfully requested.

IV. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1, 3-10, 12-19 and 21-27 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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